

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

B.Sc. DEGREE EXAMINATION – STATISTICS

SIXTH SEMESTER – APRIL 2010

**ST 6602 - STATISTICAL PROCESS CONTROL**

Date & Time: 20/04/2010 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

**PART – A**

**Answer ALL the questions**

**(10 x 2 =20 marks)**

1. Define quality.
2. Why TQM philosophy is so important in today's scenario?
3. Explain Box plot.
4. What is meant by frequency distribution?
5. When is a process said to be in Control?
6. Mention any two situations in which C-chart can be used.
7. Define process capability analysis.
8. Mention the purpose of process capability analysis.
9. Define single sampling plan for attributes.
10. Mention the need for continuous sampling plan.

**PART – B**

**Answer any FIVE questions.**

**(5 X 8 =40 marks)**

11. Discuss the link between quality improvement and productivity.
12. Explain the principles of TQM.
13. The head of the personal department of an insurance company maintains records of yearly medical leave taken by 30 employees. The data collected by him is as given below:-

13	47	10	3	16
7	25	8	21	19
12	45	1	8	4
6	2	14	13	7
34	13	41	28	50
14	26	10	24	36

Construct a **stem-leaf** display of the table. The entries on the **leaves** should be in an increasing order.

**(P.T.O.)**

14. Describe briefly the construction of p-chart.
15. Explain the statistical basis of  $\bar{X}$  and R charts.
16. Distinguish between CUSUM control chart and Shewhart control chart.
17. Mention the situations where acceptance sampling is most likely to be useful.
18. Explain in detail the item by item sequential sampling plan.

**PART – C**

**Answer and TWO questions**

**(2 x 20 = 40 marks)**

19. (a) State the requirements for successful implementation of TQM.  
(b) State the benefits of TQM.
20. (a) Explain process-capability analysis using a Histogram.  
(b) How process- capability analysis is a vital part of an overall quality improvement program?
21. (a) Discuss how a CUSUM control chart can be used to detect upward shifts in the process mean.  
(b) Explain the construction of slant control chart.
22. (a) State the advantages and disadvantages of acceptance sampling.  
(b) Explain the operating procedure for double sampling plan and multiple sampling plans.

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